

Greenland. The meteorological station there was founded through the efforts of the Bergen Geophysical Institute by private subscription and some assistance from the Norwegian Government.—A. J. H.

BULLETIN OF THE CUBAN NATIONAL OBSERVATORY.

We are glad to note the enlargement of the Cuban National Observatory Bulletin published by the Department of Agriculture, Commerce, and Labor. This bulletin, which formerly carried a formal review of the weather and crops, now includes articles on various meteorological topics, as well as data of daily meteorological observations in considerable detail for the national observatory and monthly summaries of temperature and precipitation for 26 substations throughout the island.

The enlarged publication is a welcome addition to the literature on tropical meteorology.

METEOROLOGICAL SERVICE FOR COLOMBIA.

Meteorologists throughout the world will be glad to learn that the Republic of Colombia is organizing a national meteorological service, with headquarters at the observatory of Bogota. This service will be under the direction of the Rev. Simón Sarasola, S. J., founder and for 10 years director of the Observatorio del Colegio "Nuestra Señora de Montserrat," Cienfuegos, Cuba.

Very little meteorological or climatological work has heretofore been done in Colombia, even in comparison with the other regions of tropical Latin America, and the data to be collected by the new service will fill a serious gap in scientific literature. Moreover, a thorough climatological survey of Colombia will undoubtedly be of immense economic value to that country as an aid to the development of agriculture and the various industries. The Colombian Government is to be congratulated upon the important enterprise that it has undertaken, and it is greatly to be hoped that the other Latin-American Republics that now lack official meteorological organizations will follow Colombia's enlightened example.

FIRST AEROLOGICAL STATION IN BRAZIL.

We are indebted to Consul General Alphonse Gaulin, of Rio de Janeiro, Brazil, for the following:

According to an article which occurred in the Brazilian American of March 4, 1922, the Director of the Brazilian Meteorological Service has started the preliminary surveys for the construction of a kite station in the State of Rio Grande do Sul. * * * This appears to be the first step taken in regard to the proposed aerial lines between Rio de Janeiro and Porto Alegre.

WIND MEASUREMENTS IN THE LOWEST LAYERS.¹

By ALBERT PEPLER.

[Abstracted from *Beiträge zur Physik der freien Atmosphäre*, Band IX, Heft 3, pp. 114-129. 1921.]

The high radio towers at Nauen and Eilvese, Germany, afford exceptional opportunity, owing to their slender

construction and consequent freedom from eddies and turbulence, for measuring the speed of the wind at various low levels in the atmosphere. Hellmann has investigated these conditions on the Nauen tower and the author now offers a discussion of the observations on the Eilvese towers, the highest of which is 250 meters.

The measurements were made at altitudes of 0, 2, 9.5, 16.5, 42, 82, and 124 meters above the ground. The anemometers were located on various towers of the radio station. This station is located in a level marshy region about 4 kilometers northeast of the Steinhuder Meer, and is therefore characteristic of the lowlands of northwest Germany.

The following phases of these observations are discussed:

(1) *The increase of wind speed with height.*—It is found that when the speed at 2 meters is plotted against the difference between the speed at the surface and at 2 meters the points fall on a parabolic curve. The formula of Hellman, $V_0 = V_2 (h/2)^{1/2}$ for calculating wind speeds between surface and 2 meters agrees well with the Eilvese observations, especially when the speed is between 3 and 5 m. p. s. at 2 meters. Above 2 meters, the rate of increase of wind speed falls off quite rapidly, until above 16.5 meters it is almost linear, increasing about 2 centimeters per second per meter increase of altitude. The mean decrease of rate is shown as follows in cm. p. s. per meter of height:

	0-2	2-9.5	9.5-16.5	16.5-42	42-82	82-124
Eilvese.....	116	12	6	2	2	2
Nauen.....	104	10		4	2	

(2) *Comparison of vertical wind gradients in the north German lowlands with the Flanders coast.*—These comparisons are possible through observations made during the war. The anemometer at Brügge was located on a tower at an effective height of 80 meters above the surface. At Ostend observatory—on the coast, 22 kilometers distant—the anemometer was located at a height of 30 meters above the surface. The difference in wind speed between the two stations is in accord with the Nauen and Eilvese observations.

(3) *Diurnal variation of wind speed.*—The discussion embraces both cyclonic and anticyclonic weather, and it is shown that in anticyclonic weather the maximum wind speed occurs about midday and minimum just after midnight. The 124-meter curve, however, has its maximum just before midnight and its minimum just before noon. The curve for 42 meters is intermediate, showing the least amplitude of diurnal variation. The cyclonic curves are more nearly parallel, and show in all levels a maximum wind speed just after midday and a minimum just before midnight. In comparing the vertical wind gradient in cyclones and anticyclones it is found that between 2 and 16 meters above the surface the rate of increase is greater in cyclones than in anticyclones, but above 16 meters there is no essential difference.—C. L. M.

¹ Windmessungen auf dem Eilveser Funkenturm.